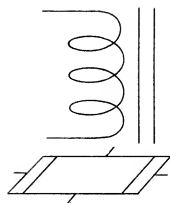
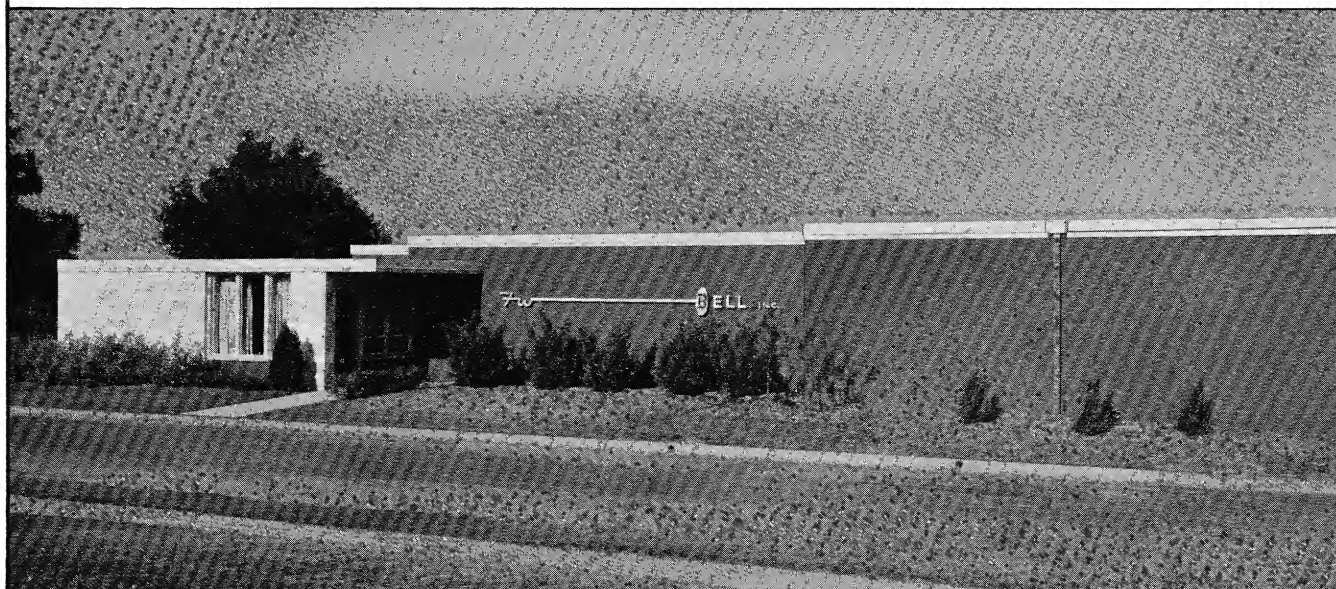


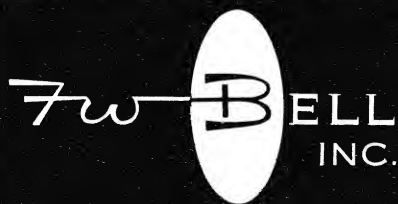
SHORT FORM CATALOG

**HALL EFFECT GAUSSMETERS
STANDARD and SPECIAL PROBES
HALL GENERATORS
MAGNET PROCESSING SYSTEMS
NONDESTRUCTIVE
TESTING INSTRUMENTS
HALL EFFECT MULTIPLIERS
WATTMETER TRANSDUCERS
WIDEBAND WATTMETERS**

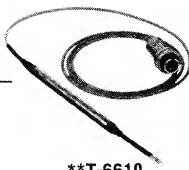
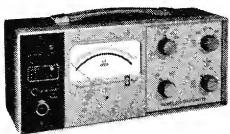
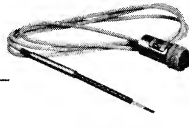
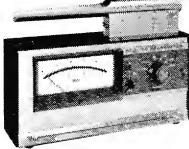


ELECTRONIC DESIGN • DEVELOPMENT • MANUFACTURING





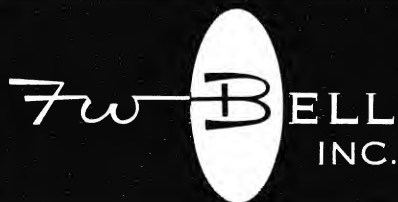
HALL EFFECT GAUSSMETERS

GAUSSMETERS	FEATURES	RANGES ACCURACY	FREQ. RESPONSE POWER REQ.	SIZE — SHIP. WT. OUTPUT VOLTAGE	PROBES (Typical)
DIGITAL Model 660 	- Digital Readout, Analog Output 2 Parts in 10^5 Ultimate Resolution - Temperature Compensated Probe	6 Ranges: 1 to 100,000G Full Scale $\pm 1/4\%$ to 10kG $\pm 1\%$ to 30kG	*Static and slowly varying fields only 110/220 V ac line power	6" x 17" x 12" 29 lbs. 1V FS	 **T-6610
AC FIELD Model 350 	- Direct readout of ac fields - Frequency Band-width Control - Spectrum Analysis Possible	10 Ranges: 0.1 to 3,000G Full Scale $\pm 1\%$ FS Plus Cal Accuracy	ac Fields 9 to 30,000Hz Battery	6" x 13" x 7" 12 lbs. 1V rms FS	 **T-3502
INCREMENTAL Model 240 	100X Scale Expansion 1 Part in 10^4 Ultimate Resolution 5V dc Auxiliary Output Available	12 Ranges: 0.1 to 30,000G Full Scale $\pm 1\%$ FS to 10kG	*dc Fields to 400Hz w/ Mod. Kit 110/220 V ac line power	7" x 12" x 14" 24 lbs. 2V dc FS and 2 to 5V dc adjustable at auxiliary output.	 **T-2402
HIGH SENSITIVITY Model 120 	- Sensitivity of .1 Gauss FS - Long Term Stability - Self-calibrating	12 Ranges: 0.1 to 30,000G Full Scale $\pm 1\%$ FS to 10kG	*dc Fields to 400Hz w/ Mod. Kit 110/220 V ac line power	7" x 12" x 13" 20 lbs. 300mV FS	 **T-1202
PORTABLE Model 110A 	- Solid State - ac Line or Battery Operated - Zero Center Meter	10 Ranges: 1 to 30,000G Full Scale $\pm 2\%$ FS to 10kG	*dc Fields to 400Hz 110/220 V ac line power or battery	8" x 11" x 6" 8 1/2 lbs. 100mV FS	 **T-1102
HIGH FIELD Model 300 	- Measures dc Fields to 30kG - Extended Range (100kG) 2 1/2 % Accuracy to 30kG	6 Ranges: 300G to 30kG FS w/ Extended Range $\pm 1\%$ FS to 10kG $\pm 2 1/2\%$ to 30kG	*dc Fields to 3,000Hz 110/220 V ac line power or battery	6" x 13" x 7" 12 lbs. 10 mV dc FS approx.	 **T-3002
GENERAL PURPOSE Model 150 	- Battery Operated - Simplicity - Low Cost	5 Ranges: 300 to 30,000G Full Scale $\pm 3\%$ FS to 10kG	dc Battery	7" x 10" x 5" 8 1/2 lbs. (none)	 **T-1502

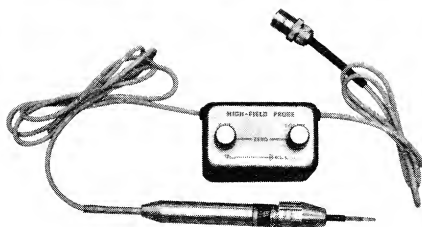
*Direct readout of static (dc) fields only. Time-varying (ac) and static (dc) fields response available at output jacks.

**Probes: A wide variety of standard and special probes is available. Write for a complete catalog or assistance with your application.

Leaders in Hall effect instruments and components



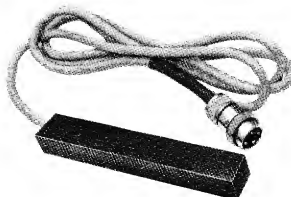
SPECIAL PROBES HALL-PAK® HALL GENERATORS



HIGH-FIELD PROBE

Uses high-linearity Hall generator to obtain direct scale readings from 1 to 30,000 gauss to an accuracy of $\pm 2\%$ when used with Bell 120 or 240 Gaussmeter. An outstanding feature is the individual calibration curve on each unit that provides correction information necessary to attain an accuracy of $\pm 0.5\%$. Used with Bell Model 240 Incremental Gaussmeter, it will provide incremental measurements to 24,000 gauss. Each probe assigned a calibration constant to facilitate calibration without calibration magnet.

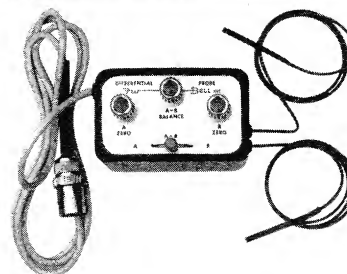
High-Field Transverse Probes:	Gaussmeter Model:
HFT-1201	120
HFT-1202	120
HFT-1203	120
HFT-2401	240
HFT-2402	240
HFT-2403	240
High-Field Axial Probes:	Gaussmeter Model:
HFA-1201	120
HFA-2401	240



MAGNA-PROBE

Uses high-sensitivity Hall generator in a flux concentrator type field probe to increase sensitivity of Bell Gaussmeters by 100 times. Provides 8 ranges from .001 gauss, full scale, to a maximum of 3 gauss, full scale. Designed to be used in large (3 cu. ft. min.) low gradient fields. Used with Model 350 AC Gaussmeter, it will measure very small ac fields from 10Hz to 5kHz and analyse them into individual frequency components. Each unit factory-calibrated and assigned a calibration number, eliminating necessity for calibration field. Probe is 6" long x $\frac{3}{4}$ " x $\frac{3}{4}$ ", with 5' cable.

Probe Model:	Gaussmeter Model:
M-1101	110A
M-1201	120
M-2401	240
M-3501	350

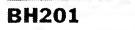
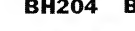
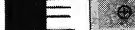
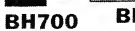


DIFFERENTIAL PROBE

Uses two new ultra-stable Hall generators which have matched characteristics. Elements are used independently for absolute measurements and in series opposition for differential measurements. A magnetic field differential between the two elements of only 1% of absolute field provides full-scale deflection and resolution of 1 part in 10,000. Magnetic field gradients or differences can be measured over distance varying from a few thousandths of an inch up to 40 inches and in any direction or plane. Each of two Hall generators is encapsulated in a ceramic package at the end of 20" plastic tubing for maximum protection. Dimensions at location of element are .235" wide, .040" thick and 2" long over these dimensions.

Probe Model:	Gaussmeter Model:
D-1201	120
D-2401	240

Hall-Pak® HALL GENERATORS

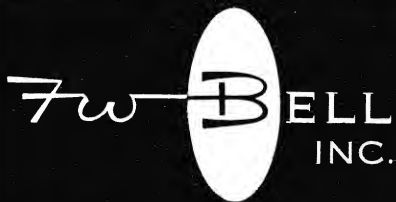
Hall-Pak® HALL GENERATORS			OPEN CIRCUIT HALL VOLTAGE V _{HOC} , mV ± 25% (AT NOMINAL I _C , B = 10kG)	RESISTIVE NULL VOLTAGE V _M , μV MAX (B = 0, I _C = 100mA)	INPUT RESISTANCE R _{IN} , Ω (INCLUDING LEADS)	OUTPUT RESISTANCE R _{OUT} , Ω (INCLUDING LEADS)	NOMINAL CONTROL CURRENT I _C , mA	LENGTH/WIDTH/THICK. OR DIAM./LENGTH (inch)
		BH-200 General Purpose Transverse	150	100	1.5	1.0	150	.500/.130/.019
		BH-201 Ultra-Thin Transverse	120	250	2.3	1.8	100	.625/.135/.006
		BH-202 Small Axial	100	100	2.6	1.8	100	.130 diam /.150
		BH-203 General Purpose Axial	100	100	1.9	1.3	100	.195 diam /.175
		BH-204 Midget Axial	110	200	2.3	1.9	100	.100 diam /.150
		BH-205 Midget Transverse	130	100	2.1	1.4	125	.375/.080/.015
		BH-206 High Sensitivity Transverse	550	500	5	3.5	200	.750/.225/.030
		BH-207 High Resolution Tangential	160	200	2	1.5	150	.500/.145/.045
		BH-208 Ultra Midget Axial	100	250	2.7	1.9	100	.063 diam /.170
		BH-700 Low Cost Transverse	500	750	5	4	200	.200/.250/.023
		BH-701 High Linearity Transverse (Note 1)	75	75	2	1.5	100	.625/.230/.040
		BH-702 Ferrite Imbedded (Note 2)	250	250	3.5	3	200	.300/.200/.083
		BH-703 3-Axis	75	100	1.5	1.5	100	.285 diam /.750

Note 1: Hall voltage (V_H) vs. B field, { $\pm 25\%$ of reading from -10 KG to $+10\text{ KG}$
 $\pm 1\%$ of reading from -30 KG to $+30\text{ KG}$ }

Linearity curves furnished for -10 KG to $+10\text{ KG}$ and -30 KG to $+30\text{ KG}$. Optimized curves for other ranges available on special order.

Note 2: In a free field of 100 gauss the open circuit Hall voltage is 9 mV min. In a closed magnetic circuit, minimum sensitivity is 3.2 mV/ampere-turn.

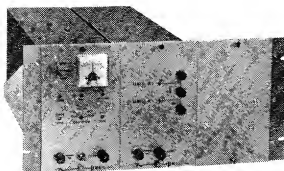
Leaders in Hall effect instruments and components



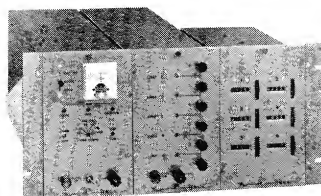
MAGNET PROCESSING SYSTEMS NONDESTRUCTIVE TESTING INSTRUMENTS



HS-6002 — One adjustable limit for categorizing magnets into two groups. Range: 0.1 to 30,000G. Solid state. Single cabinet.



HS-6003 — Two adjustable limits for sorting magnets into three groups. Range: 0.1 to 30,000G. Solid state. Rack-mounted.



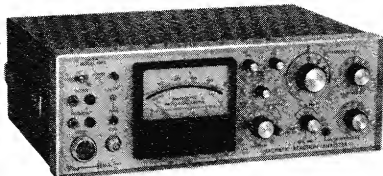
HS-6007 — Five adjustable limits for sorting magnets into six groups. Range: 0.1 to 30,000G. Solid state. Rack-mounted.

MAGNET PROCESSING SYSTEMS

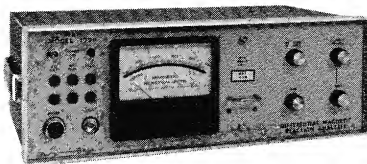
The HS series Magnet Testing and Inspection Equipment measures magnetic flux density to a repeatability of 0.1%. Uses Hall element placed in field of magnet or magnetic structure and provides both visual light indication and relay contact closure at adjustable pass-reject point. Pass-reject point may be adjusted anywhere on full-scale ranges of $\pm 1\%$, $\pm 2\%$, $\pm 5\%$, $\pm 10\%$, $\pm 20\%$ or $\pm 100\%$ of field used to set the limits. Systems with one (1), two (2), or five (5) adjustable limits are available which may be used for "grading" magnets into 2, 3 or 6 categories with visual indication for each category. Relay contact closure may be used to mechanically reject magnet or cut off demagnetizing current at pre-set point. Accessory panel is available with electro-mechanical counters which count number of magnets in each range. The series utilizes all solid state circuitry designed for reliable, trouble-free operation.

MODEL NO.	DESCRIPTION	SHIP. WT.	DIMENSIONS
HS-6002	One adjustable limit. 2 groups (High and Low) with light & relay for each group. Single cabinet.	20 lbs.	8 $\frac{1}{4}$ " high, 5 $\frac{1}{2}$ " wide, 16 $\frac{1}{2}$ " deep
HS-6003	Two adjustable limits. 3 groups (High, Low & one between limits) with light and relay for each group. Rack panel mounted.	36 lbs.	8 $\frac{1}{4}$ " high, 19" wide, 16 $\frac{1}{2}$ " deep
HS-6004	Five adjustable limits. 6 groups with light and relay for each group. Rack panel mounted.	38 lbs.	8 $\frac{1}{4}$ " high, 19" wide, 16 $\frac{1}{2}$ " deep
HS-6005	Same as HS-6002 with 4-digit counter for each group.	30 lbs.	8 $\frac{1}{4}$ " high, 19" wide, 16 $\frac{1}{2}$ " deep
HS-6006	Same as HS-6003 with 4-digit counter for each group.	42 lbs.	8 $\frac{1}{4}$ " high, 19" wide, 16 $\frac{1}{2}$ " deep
HS-6007	Same as HS-6004 with 4-digit counter for each group.	44 lbs.	8 $\frac{1}{4}$ " high, 19" wide, 16 $\frac{1}{2}$ " deep
Send for complete specifications on above models and quotation for your special requirements.			

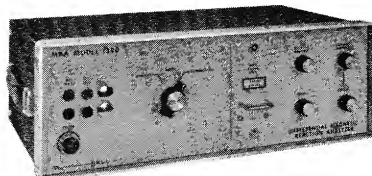
Model 1090—Absolute direct magnetic vector readout over a frequency range from 20 to 100,000 Hz. Vector phase plane analysis can be performed in materials evaluation on both magnetic and nonmagnetic metals. Complete instrument standardization is quickly performed without reference to any test material standards.



Model 1290 — Differential readout for inspection and process control applications with a frequency range from 20 to 20,000 Hz. High sensitivity comparison testing, accurate edge and weld tracking, and critical defect detection can be performed. Features plug-in, high-attenuation filter modules for noise-free performance in an industrial environment and simplified controls for easy operation.



Model 1390 — Differential capabilities as described above can be added to the absolute reading Model 1090 with this accessory unit.



NONDESTRUCTIVE TESTING INSTRUMENTS

Magnetic Reaction Analyzers *

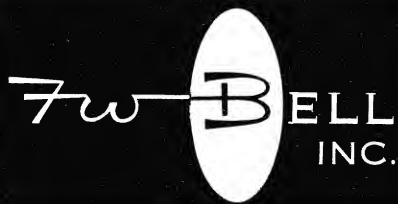
Absolute and differential-reading eddy current instruments that permit noncontacting measurement of magnetic and electrical properties of metallic materials. Hall elements (not coils) are used as magnetic detectors, which in addition to high sensitivity, offer two unique features to eddy current testing. First, they represent point-sensitive detectors in a comparatively large excitation field, so that high resolution and low lift-off are both achieved, a characteristic vital to production eddy current testing, yet seldom realized. Second, Hall elements are not frequency-sensitive and as a detector have linear response at all test frequencies and all test speeds. These characteristics make it possible to take full advantage of a constant amplitude magnetizing field at all test frequencies. High resolution eddy current testing can now be practical in an industrial environment.

Probes: MRP-001 Standard — 1 $\frac{3}{8}$ " diameter
MRP-011 Standard — $\frac{5}{16}$ " diameter
MRP-201 Differential — 1 $\frac{3}{8}$ " diameter
MRP-211 Differential — $\frac{5}{16}$ " diameter

Probes: A wide variety of standard and special probes is available. Write for a complete catalog or assistance with your application.

*Patent Pending

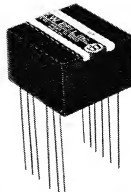
Leaders in Hall effect instruments and components



HALL-PAK[®] MULTIPLIERS WATTMETER TRANSDUCERS WIDEBAND WATTMETERS



Standard
HM-3000
Series



Economy
Package
HQ-3100 &
HQ-4100
Series

High Frequency
HM-4000
Series



High Current
HM-3500 &
HM-4500
Series



HALL-PAK[®] MULTIPLIERS

Solid state units consisting of a Hall element located in the gap of a magnetic core with two identical field coils. Designed to provide an output voltage which is instantaneously proportional to the product of two independent dc or ac input currents within 0.7% FS or better.

Typical Applications: analog multiplier, dc to ac convertor, chopper, dc isolator, magneto-electronic switch, function generator, squarer, level regulator, modulator, dc or ac power measuring transducer, torque measuring transducer.

Hall-Pak [®] Multiplier Series	Max. Field Input Ranging From	Max. Hall Input	Max. Hall Output	Packaging & Terminal Arrangement				Practical Freq. Range	
				Weight	Dimensions	Case	Terminals	Hall Input	Field Input
HM-3000	15mA to 3A	.33A	>200mV	6 oz	2" x 1 3/4" x 1 1/4"	Sealed Steel	Plug in Header	dc to 500kHz	dc to 1kHz
HQ-3100	15mA to 3A	.33A	>200mV	4 1/2 oz	1 1/8" x 1 5/8" x 1 1/8"	Phenolic	Leads on .1" grid	dc to 500kHz	dc to 1kHz
HM-3500	5A to 40A	.33A	>200mV	12 oz	3" x 3" x 1 1/2"	Steel/Phenolic	Screw	dc to 500kHz	dc to 1kHz
HM-4000	50mA to 2.5A	.30A	>50mV	3 oz	1 1/4" diam x 1 7/8"	Sealed Steel	Plug in Header	dc to 500kHz	dc to 500kHz
HQ-4100	50mA to 2.5A	.30A	>50mV	3 oz	1 1/8" x 1 5/8" x 1 1/8"	Phenolic	Leads on .1" grid	dc to 500kHz	dc to 500kHz
HM-4500	5A to 40A	.30A	>50mV	12 oz	3" x 3" x 1 1/2"	Steel/Phenolic	Screw	dc to 500kHz	dc to 500kHz

Complete specifications on 64 different models in these series available upon request.



HP-5000
Series



HX-5000
Series

HALL-PAK[®] WATTMETER TRANSDUCERS

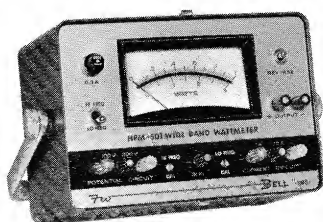
Solid state units consisting of a Hall-Pak[®] multiplier combined with a potential transformer. Designed to provide an output voltage which is instantaneously proportional to real power within 0.5% FS or better.

Model	Nominal Ranges W V A			Common Specifications	HP-5000 Series	HX-5000 Series
HP-5000 Series, sealed steel case, 50 Hz to 400 Hz, single phase				Frequency range and phase: Current burden: Voltage burden: Output at nominal power: Linearity: Temperature influence, 0°C to +50°C: Power factor influence, PF ±70%: Frequency influence: Packaging: Weight: Terminals	50 Hz to 400 Hz, 1 ∅	50 Hz to 60 Hz, 1 ∅
HP-5100 ¹⁾	500	120	5		<0.6 VA at 60 Hz	<2.5 VA at 60 Hz
HP-5110	1000	120	10		<1 VA	<1 VA
HP-5120	2000	120	20		>50 mV dc at 50 Ω	>50 mV dc at 50 Ω
					<±0.25% FS	<±0.5% FS
					<±0.5%	<±0.5%
					<1%	<1%
					—2% at 400 Hz	—
HX-5000 Series, phenolic case, 50 Hz to 60 Hz, single phase					Sealed steel case	Phenolic case
HX-5000	500/1000	120	5/10		3⅜ x 1¼ x 1¼	2½ x 1¾ x 1¾
HX-5010	1000/2000	120	10/20		12 oz.	12 oz.
HX-5020	2000/4000	120	20/40		Solder terminal header	4" leads
					9-pin plug-in header	

1) Formerly Model HP-5000

¹⁾ Formerly Model HP-5000

Complete specifications on these models available upon request. Units for different ranges of frequency, current and voltage, and transducers for dc power can be supplied.



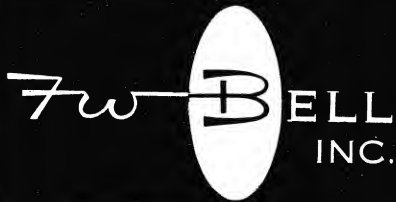
WIDEBAND WATTMETER — MODEL HPM-501

A versatile instrument to measure power at audio and ultrasonic frequencies with an accuracy of $\pm 2\%$ FS. The external output voltage is instantaneously proportional to real power and can be used for recording, oscilloscope display or control purposes.

Frequency ranges: 40 Hz to 4000 Hz
0.5 kHz to 50 kHz
Power ranges: 100, 300, 1000, 3000 W
Voltage ranges: 100 V and 300 V rms
Current ranges: 1 A and 10 A rms
External output: 10 mV FS
Dimensions: 6 3/4" x 9 3/4" x 4 3/4"
Shipping weight: 6 lbs.

Specifications are subject to change without notice

Leaders in Hall effect instruments and components



SALES REPRESENTATIVES

1 ELECTRONIC COMPONENTS & SERVICES
611 Trapelo Rd., Waltham, Mass. 02154
Phone: 617-894-6921;
TWX: 617-894-9857

2 LABTRONICS, INC.
161 Pickard Bldg., Syracuse, N.Y. 13211
Phone: 315-454-9314

3 CANE TECHNICAL SALES, INC.
555 E. Boston Post Rd.,
Mamaroneck, N. Y. 10543
Phone: 914-698-4411

4 TYLER GRIFFIN COMPANY
46 Darby Rd., Paoli, Pennsylvania 19301
Phone: 215-647-1550

5 WKM ASSOCIATES, INC.
90 Clairton Blvd., Pittsburgh, Pa. 15227
Phone: 412-892-2953;
TWX: 412-525-2356

6741 Ridge Rd., Cleveland, Ohio 44129
Phone: 216-885-5616;
TWX: 216-845-2304

1474 East Outer Drive,
Detroit, Mich. 48234
Phone: 313-892-2500

6085 Far Hills Ave., Dayton Ohio 45459
Phone: 513-298-7203;
TWX: 513-944-0280

6 PHYSIMETRICS
Suite 518-Penthouse, 3376 Peachtree
Rd., N.E., Atlanta, Ga. 30326
Phone: 404-237-8278

P.O. Box 536, 502 Selkirk Dr.,
Winter Park, Fla. 32789
Phone: 305-647-5722

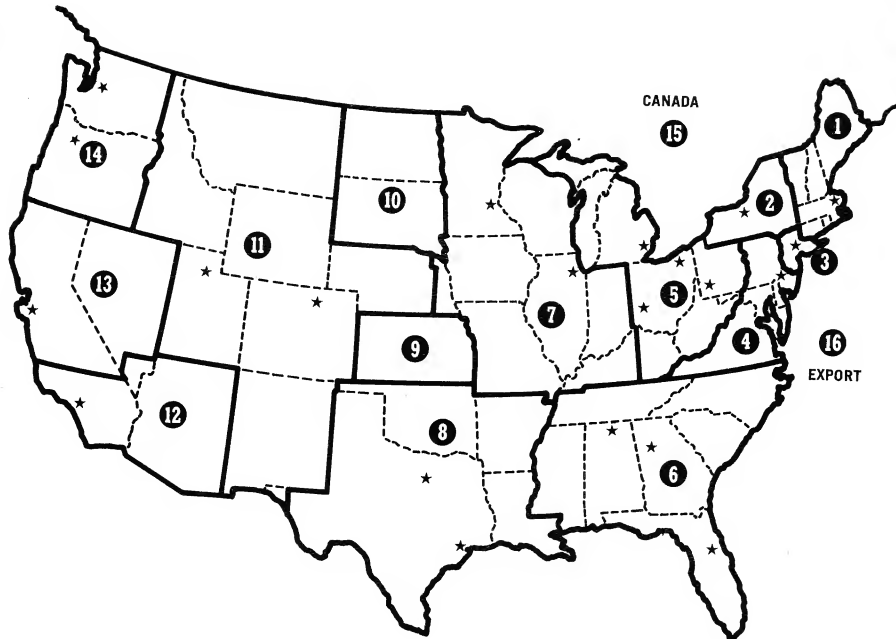
2105 Dogwood Lane,
Huntsville, Ala. 35810
Phone: 205-539-3274

7 R. EDWARD STEMM, INC.
5681 W. Lake St., Chicago, Ill. 60644
Phone: 312-379-2700;
TWX: 312-265-1344

2713 Lyndale Ave., S.,
Minneapolis, Minn. 55408
Phone: 612-822-8404

8 CAREY-WOLF COMPANY
Box 12425, 3327 Winthrop Ave., Fort
Worth, Texas 76116
Phone: 817-738-1702 (Ft. Worth),
214-823-5383 (Dallas)

TWX: 817-891-8203
Box 60338, Houston, Texas 77060
Phone: 713-643-2114;
TWX: 713-571-1123



9 F. W. BELL, INC.
1356 Norton Ave., Columbus, O. 43212
Phone: 614-294-4906;
TWX: 614-759-0193

10 F. W. BELL, INC.
1356 Norton Ave., Columbus, O. 43212
Phone: 614-294-4906;
TWX: 614-759-0193

11 GORDON MOSS ELECTRONICS, INC.
Box J, Greeley, Colorado 80632
Phone: 303-353-1452
Box 8022, Foothills Section,
1502 Preston St.,
Salt Lake City, Utah 84108
Phone: 801-485-2870

12 PAUL NURCHES COMPANY
2396 E. Foothill Blvd.,
Pasadena, Calif. 91107
Phone: 213-796-5844 (Pasadena);
213-681-8957 (L.A.)

13 STRAUBE ASSOCIATES
483 Willow Rd., Menlo Park, Calif. 94025
Phone: 415-323-2476;
TWX: 415-492-9266

2888 Telegraph Ave.,
Berkeley, Calif. 94705
Phone: 415-841-4450

14 DALE G. WEBER COMPANY
Suite 306 Weatherly Bldg.,
Portland, Oregon 97214
Phone: 503-234-7671
TELEX: 036-569

325 Maritime Bldg., Seattle, Wash. 98104
Phone: 206-623-5990

15 (CANADA)
MEGATRONIX LIMITED
1800 Avenue Rd., Toronto 12,
Ontario, Canada
Phone: 416-783-3329;
TWX: 610-491-1713

16 (EXPORT)
JOSEPH PLASENCIA, INC.
521 Fifth Ave., New York, N.Y. 10017
Phone: 212-867-8084; Cable: UNIONTEX

Send for complete catalog describing all our products.

Fw

Leaders in Hall effect instruments and components



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TWX 614-759-0193